YEAR 9 MATHS – LINEAR EQUATIONS & INEQUATIONS REVIEW NAME: _____

This worksheet is intended to remind you of the work you completed during the last 3 weeks of Term 1. There will be a short test in your next lesson covering all this work.

<u>Reminders:</u> The Language of Maths

$3x$ means that x has been _____ by 3.

The inverse operation of + is _____

The inverse operation of is _____

The symbol for 'less than or equal to' is _____

A number line that shows $x > 3$ looks like ……

When you see $-2 < x < 3$, what can you tell me about the values of x? _____

An open circle on a number line indicates that the x value (is / is not) included. [Cross out the incorrect statement!]

An inequality is an equation with a _____ or _____ or _____ or _____ sign instead of an equal sign

<u>One-Step</u>

To solve these linear equations, what do you have to do? <u>Then</u> write the answer.

a) $x + 21 = 28$ _____ x = _____

b) _____ x = _____

c) $4x = 20$ _____ x = _____

d) _____ _____ x = _____

e) $x - 7 = 1$ _____ x = _____

<u>Two-Step</u>

Solve these linear equations. Show the steps you take!

a) $5x + 3 = 37$ b) $2x - 8 = 22$ c) d) = 5

<u>Three-Step</u>

Solve these linear equations. Show the steps you take!

a) b) c) $3(x + 2) = 2$ d) $4(3x + 2) = 5$

Pronumerals on both sides

Solve these linear equations, by first getting the pronumerals on the same side.

a) $4x + 5 = 3x + 12$ b) $3x - 4 = 11 - 2x$ c) $2x + 5 = 8x - 7$

Number Lines

Draw a number line to show:

$x > -2$

$x \leq 0$

$-3 < x \leq 3$

Inequations

Solve the following inequations…..keep an eye out for the 'switcheroo'

a) b) c) $6p + 2 < 7p - 1$ d) $2(3x + 1) > 2x - 16$

Worded Question …..get ready to 'think'

Olivia is twice as old as Jenny. The sum of their ages is 27. How old are Olivia and Jenny?

Another worded question

Eve has $30,000 saved for her holiday. If her travel expenses are $5800 and her daily expenses are $350, how long can she go on holidays for if she wants to make sure she has $5000 left for the purchase of a new 3D TV?

Another worded question

Abbey wants to hire a car for 1 day. She has a total of $70 to spend. The A1 Car Rental company charges a flat fee of $35 per day plus $0.30 per kilometre. How far can she travel on her budget?

The Super Car Rental company charges a flat fee of $45 per day but only $0.25 per kilometre. Abbey is not sure which company to rent a car from. Please work out for Abbey, for what distances will it be cheaper to rent from the Super Car Rental Company?

Another worded question

The cost of hiring the band ‘One Direction’ for a party is $20000 per

hour for the first 2 hours, then $15000 per hour for any hours after the first 2 hours.

a) Write an equation that shows the total cost (use C) for hiring the band for h hours, where $h > 2$.

b) If you have $100,000, for how many hours can you hire the band?

c) Show that $140000 will allow you to have the band play for 10 hours.

Find the errors (if there are any??)!!

a) $9k = 18 - 3k$

$6k = 18$ _____

$k = 3$ _____

b) $x + 16 = -4$ _____

$x = 12$ _____

c) $-3x = 96$

$x = 99$ _____

d) $x + 16 = 3x - 4$

$16 = 4x - 4$ _____

$20 = 4x$ _____

$5 = x$ _____

e) $1 - 3x < 7$

$-3x < 6$ _____

$-3x > -2$ _____